

**ABSTRACT OF THE DISCLOSURE**

A method for creating a secure powerline modem network transmits a private key (y) individually to each of the plurality of powerline modem devices (22) to be secured in a network such that each powerline modem device receives the private key in isolation of the network. Each of the plurality of powerline modem devices store the private key. A public key (X) is computed by a master device (32) in the network to be secured. The public key is transmitted from the master device to the plurality of devices. A shared key (Y) is computed at each of the plurality of powerline devices based on the public key and the private key, and communication within the secured network is performed by employing messages encrypted based on the shared key.

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